

Task Order Statement of Work (SOW)

Date: 23 July 2018

Task Name: JWST Mission Systems Engineering

Task No. / Mod: 35/4

Task Monitor (TM) : Mike Davis, Code 599

Contract number: NNG15CR64C

Contract SOW Reference: Function 4, Discipline B (Implementation Phase Services – Mission Systems Engineering)

I. Scope

- a. Background: The James Webb Space Telescope (JWST) is scheduled for launch in 2021. The spacecraft bus is built by Northrop Grumman of El Segundo, CA. The JWST instrument suite is assembled at NASA/GSFC. The ISIM module will be integrated with the telescope and shipped to the Spacecraft vendor for integration with the Spacecraft Bus.
- b. Summary of work – The task will involve the performance of structural and dynamic analysis for JWST Observatory, elements, or interfaces in support of JWST Observatory Mechanical Systems requirements including support to system performance in launch, integration, testing, thermal distortion, on-orbit performance etc.
- c. Required skills/knowledge - All tasks require extensive systems engineering experience including extensive experience on JWST.
- d. Purpose of this Mod – This modification is to extend the period of performance thru 31 March 2019

II. Period of Performance

The period during which the work for this task shall be performed is from 1 October 2018 thru 31 March 2019. The task is expected to be incrementally extended through JWST launch (March 2021).

III. Task Description

Perform structural and dynamic analysis for JWST observatory, elements, or interfaces in support of JWST Observatory Mechanical Systems requirements including support to system performance in launch, integration, testing or on-orbit performance, thermal

distortion, mass optimization, etc.

Perform NASTRAN modeling, model integration, and analysis tasks related to thermal distortion performance and cooldown loads on JWST. This includes mapping of predicted temperatures onto the structural model, model checkouts, and thermal distortion analyses as well as support to any design trades and test planning.

All tasks will be defined and prioritized solely by the NGAS Mechanical Systems Lead.

This support will be provided by personnel located in the Pacific Time Zone, preferably California.

Monthly Deliverable Report

The contractor shall provide no later than the 10th working day following the close of the contractor's monthly accounting period a 533M for each individual subtask and a summary 533M at the total task level. If it is not possible to provide the individual 533M at the subtask level, the contractor shall provide on the 10th working day following the close of the contractor's monthly accounting period a break out of hours and costs by subtasks to the Contract Resource Analyst, Contracting Officer, and the Task Monitor. The report shall include current period hours and costs, cumulative to date hours and costs, and cumulative costs with a one-month cost plan. When needed, the contractor shall make adjustments to the distribution of costs, layout of the report and change reportable elements as specified by the Task Monitor and/or the Contract Resource Analyst.

IV. Deliverables/Schedules/Milestones

At a minimum, the contractor shall deliver the items specified below:

<u>Ref#</u>	<u>Deliverables</u>	<u>Due Date</u>
1	Status Reports	Monthly
2	Performance Reports	Monthly
3	End-of-task Report	End of task

NOTE: Deliverables should include source code, executable and all related documents, if applicable.

V. Management Approach

a. Staff Allocation, Expertise, and Skill Mix

The contractor shall staff this work item with the appropriate skill mix and staffing level for the work.

b. Configuration Management

Systems and documents will be covered under the JWST Project Configuration Management Plan.

c. Facilities

Appropriate IT devices to support the analyses, specification development, and report development are required. It shall be the contractor's responsibility to provide and set up local workstations and network connections at the contractor's off-site facilities as required, and to install any required tools and utilities on the contractor's equipment.

d. Risk Management and Best Practices

The contractor shall manage schedule, cost, and technical risk through monitoring and reporting of progress and performance metrics, identifying issues well in advance of negative consequences, recommending corrective action to the TM, and implementing corrective actions with the compliance of the TM.

e. Performance Metrics

The work performed for this task will be evaluated by the TM based on the technical merit. The TM shall develop detailed performance metrics that shall reflect the contractor's performance in meeting research analysis, specific mission requirements, deliverables and delivery schedule, and the contractor's cost. Technical evaluation of the task performance is a subjective combination of performance metrics, technical quality of deliverables, cost control, significant events, innovations and meeting requirements set forth in the SOW.

f. Government Furnished Facilities, Equipment, Software and Other Resources

The Government will provide account and passwords to government-furnished workstations where existing versions of various relevant software packages shall be maintained. It shall be the contractor's responsibility to complete any GSFC required security-related training courses.

g. Quality Assurance Requirements

The contractor shall comply with the JWST Mission Assurance Requirements for the JWST Observatory, Phase 2 (JWST-RQMT-000650)

VI. ODC (Travel and Procurement)

Please provide a BOE for all proposed ODC's to determine the reasonableness. Domestic Travel will be as needed per the below table. No foreign travel is expected.

<u>Location</u>	<u>Duration</u>	<u>Dates</u>
<i>Greenbelt to Los Angeles</i>	<i>1 person</i>	<i>Every 4 months</i>
	<i>4 days</i>	

VII. Work Location

This support will be provided by personnel located in the Pacific Time Zone, preferably California.

VIII. Reporting Requirements

a. Monthly Performance/Progress Reports

The contractor shall provide monthly technical and schedule progress reporting to adequately describe the activities of the contractor team to the TM. The contractor shall provide month cost reporting in accordance with the WBS. The contractor, including subcontractors, shall be available to attend monthly status meetings.

IX. Security Requirements

The contractor shall comply with Information Technology Security procedures and requirements as defined by NPR 2810.1A in the performance of this task. In addition, the contractor shall comply with all applicable federal rules and regulations and agency directives.

The Contractor shall adhere to project requirements regarding ITAR related information, as controlled by the ITAR, 22 CFR 120-130, by the U.S. Department of State. Any transfer of controlled information to a foreign person or entity requires an export license issued by the U.S. Department of State or an ITAR exemption to the license requirement prior to the export or transfer.

There will not be any handling of classified data for this effort.

X. Safety

The contractor personnel shall:

- Follow safety requirements when performing any task, keeping their workplace in a safe manner.
- Attend all required training, set forth by the ESES-II Safety/Mission Assurance Officer, ensuring certifications are current.

XI. Data Rights (Tailor as required)

This SOW shall adhere to the following Data Rights clause, as stated in this contract: “the default Data Rights clause under this contract is FAR 52.227-14 RIGHTS IN DATA-GENERAL as modified by NASA FAR Supplement 1852.227-14-Alternate II and Alternate III and GSFC 52.227-90. Any exceptions to this clause will be covered by FAR 52.227-17 RIGHTS IN DATA-SPECIAL WORKS as modified by NASA FAR Supplement 1852.227-17, and, if applicable, GSFC 52-227.93.”

XII. Applicable Documents

In the performance of this task, the contractor shall comply with the JWST Project Documentation as required.

XIII. References

None